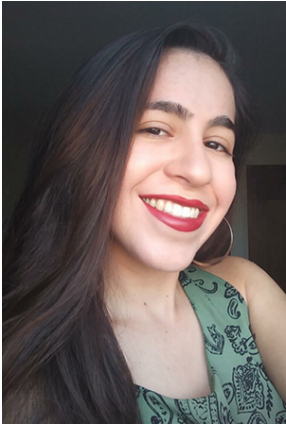


GRADUATE EXIT SEMINAR

PATRICIA MARIE CORDERO-IRIZARRY

Soil carbon as a soil quality indicator of a fruit orchard in Puerto Rico



Soil quality is defined as the soil's capacity to function within natural or managed ecosystems to sustain plant-animal-human health. It can be inferred from the evaluation of soil properties and through the development of a soil quality index (SQI). It is a value that combines soil physical, chemical, and biological characteristics and scores the soil's "fitness to function". Soil management practices (SMP), which differ depending on the landholder's agenda, can increase or decrease soil carbon (SC) storage. Therefore, the objectives of this study were: (1) to evaluate the impact of SMP on physicochemical properties in an avocado orchard (AVO) and a tropical pumpkin/bean (TPB) plot and (2) to develop an SQI for each system. Our findings suggest that greater SC content is positively correlated to higher values in soil quality indicators. However, both systems scored 0.45 on the 0 to 1 SQI scale, suggesting that higher SC content does not imply an improvement in soil physicochemical quality. Therefore, reduced machinery traffic and natural groundcover have a positive impact on soil quality indicators, but not on soil physicochemical quality itself for this study. Future research priorities should be directed towards the evaluation of soil taxonomical characterization on soil quality and determine its significance if any.

Advisor: Dr. Rattan Lal

FRIDAY, APRIL 9, 2021
1:00 P.M.

Join the seminar via Zoom:

<https://osu.zoom.us/j/93669474121?pwd=RGd0eS90MzczcINSRkNjU25GMMy81QT09>

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